SUPERMILL

UNIVERSAL - PLAIN

MILLING MACHINES

2u 3u

NEW EQUIPMENT DIVISION

S & S MACHINERY COMPANY

140 53rd Street, Brooklyn 32, New York
HYacinth 2-7400

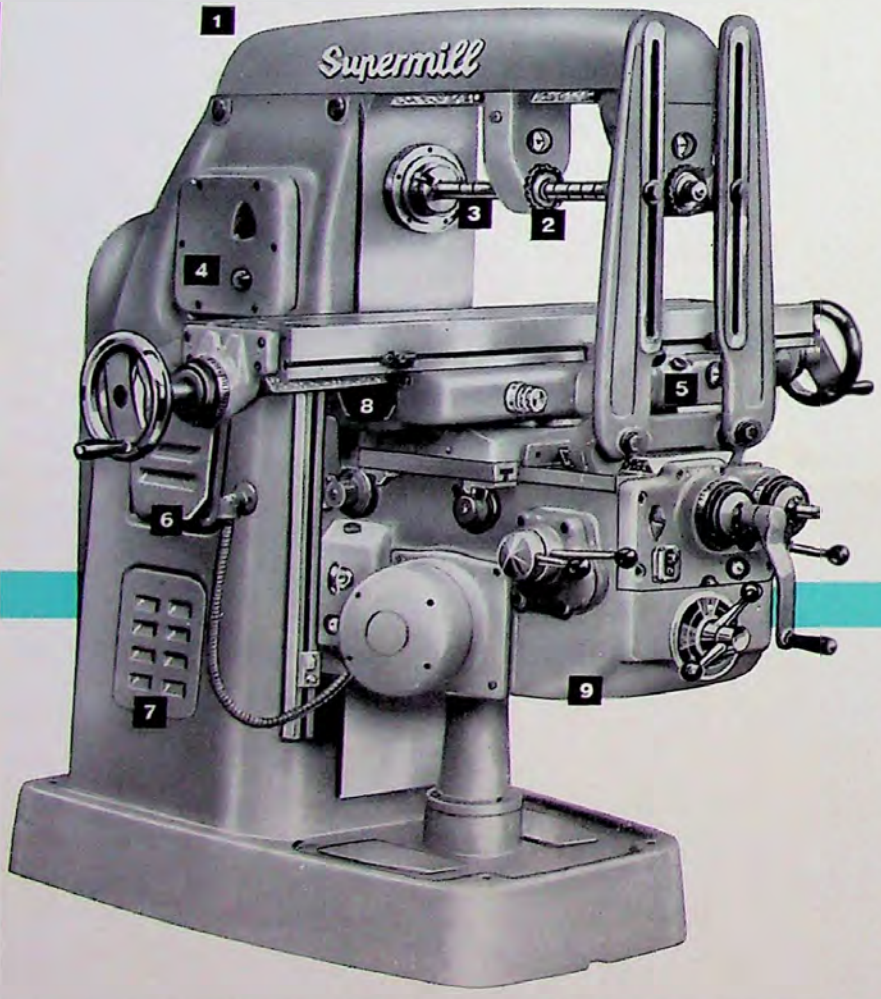
6945 Bandini Boulevard, Los Angeles 22, Calif.
Raymond 3-9231

UNIVERSAL MILLING MACHINE
SUPERMILL 2U

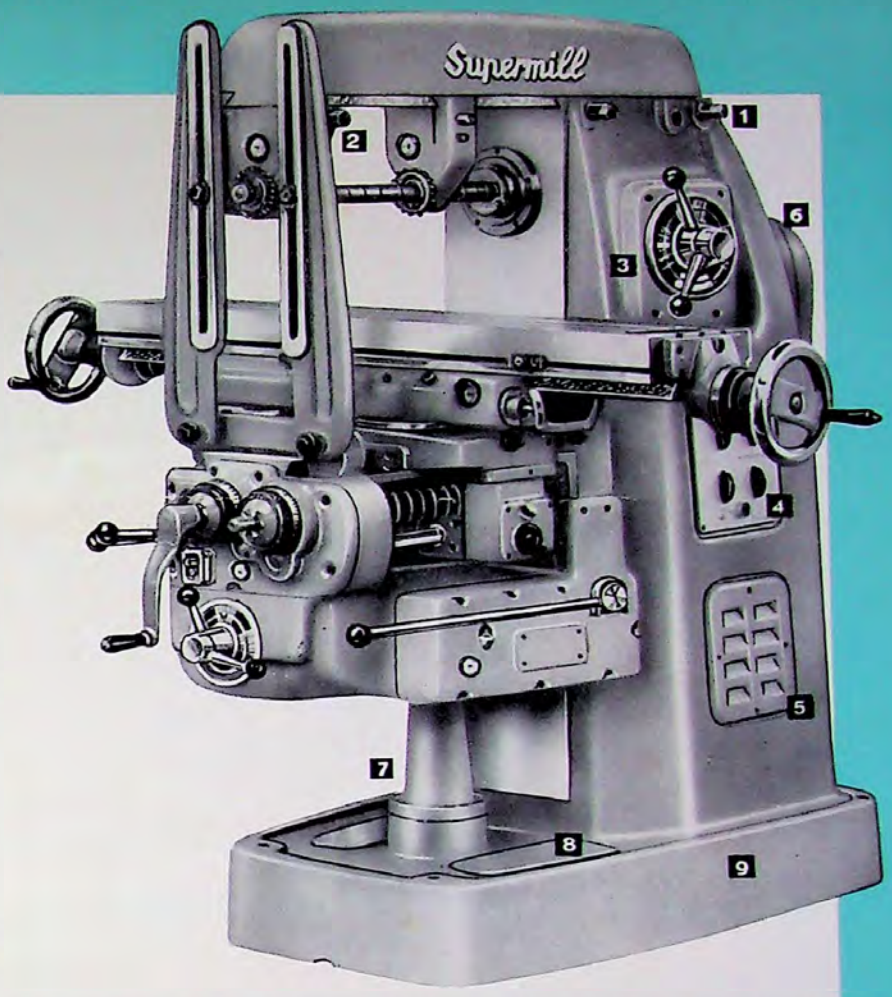
The engineers and the designers have planned this milling machine with special consideration for the following features:

EFFICIENCY - LONG LIFE - PRECISION LOW COST

The large number of costumers who are already using the 2U, proves that this has been accomplished. In fact, this milling machine can be used successfully for small production runs as well as for large quantity production and even for toolroom production, due to their precision and rugged design.



1. Adjustable overarm
2. Adjustable support for spindle arbor
3. Spindle arbor
4. Inspection cover of spindle gear-box and lubricating pump
5. Support bracket for braces
6. Inspection cover for rectifier supplying DC Current to the electro-magnetic clutch to the spindle gear-box
7. Side door for control of spindle motor
8. Carriage and table unit
9. Knee unit



1. Locking-bolts for adjustable overarm
2. Locking-bolts for adjustable supports
3. Spindle speed selector
4. Electric control panel
5. Side door for control of spindle motor
6. Rear door for control of electromagnetic cluth
7. Elevating screw for vertical movement of table
8. Inspection cover for coolant tank
9. Base containing coolant tank

MATERIALS

All the materials used for the construction are carefully inspected for quality.

Gears are made from chrome-nickel alloy steels, hardened with the gear teeth being ground, on Maag grinders, after heat-treating.

The high precision ball and tapered bearings are supplied throughout.

Bronze castings are calculated according to the stresses they have to withstand.

The lubrication system is made simple and efficient by the following units:

— an automatic pump inside the spindle gear-box
— two hand pumps for the lubrication of the slideways
— a big oil tank inside the knee-assembly for the lubrication of the feed gear-box with the splash system.

Electric control switches are all grouped together in a single panel for the following motors:

— spindle motor
— knee-assembly motor
— electromagnetic clutch rectifier
— pump motor.

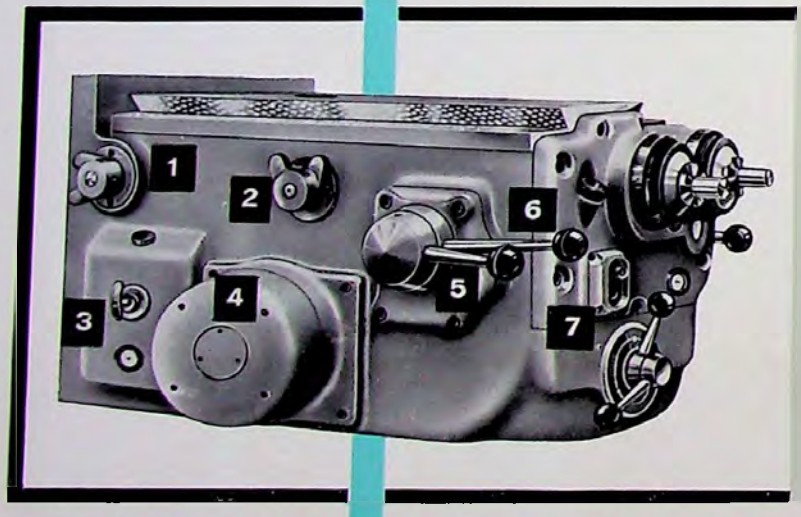
CHARACTERISTICS OF CONSTRUCTION:

EFFICIENCY - LONG LIFE AND PRECISION

Special attention has been paid to the arrangement of the controls, which are grouped in the front of the milling machine and are « directional », which means that the motions take place in the same direction as the levers are moved.

The 2U is provided with an electromagnetic clutch which has its control centralized on the front part of the knee.

The accurate selection of materials and the special lubrication system, are two features that guarantee long life and high precision of our Supermill 2U milling machine.

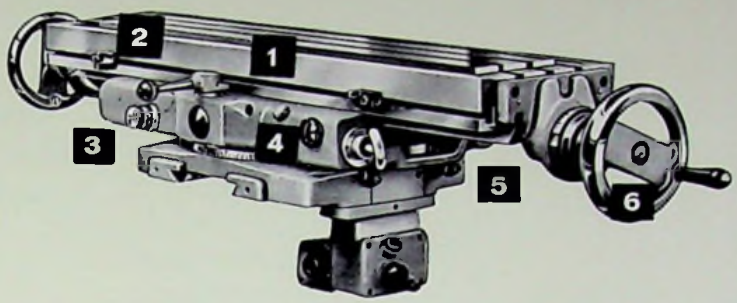


KNEE ASSEMBLY - LEFT SIDE

1. **Automatic stop for vertical movement of table**
2. **Automatic stop for cross movement of table**
3. **Tank with lubricating pump for slideways of the vertical movement**
4. **Feed motor**
5. **Control lever for vertical movement of table**
6. **Control lever for cross movemente of table**
7. **Push button for spindle start and stop.**

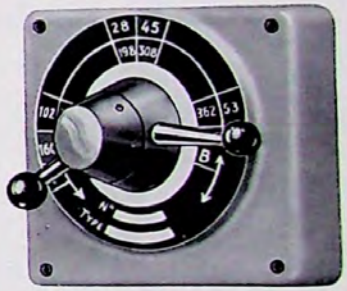
LOW COST

The production system of Supermill is based on efficient and continuous manufacturing cycle that guarantees a high degree of precision, as well as the interchangeability of parts and, at the same time, a reduced production cost, which are reflected in **lower prices.**



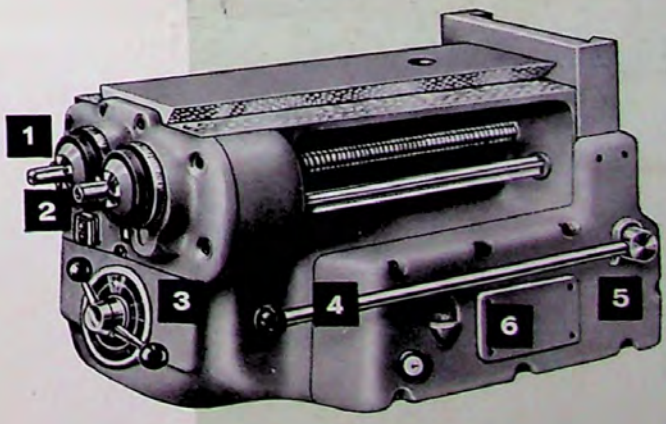
CARRIAGE AND TABLE UNIT ▲

1. Control lever for longitudinal movement of table
2. Control lever for automatic stops of table
3. Climb milling attachment
4. Tank for lubricating pump for table unit
5. Locking bolts of carriage unit
6. Hand control for longitudinal movement of table.



FEED CONTROL ▶

A quick feed selection by means of two easily controllable levers with directly readable feed rates, are characteristics for the Supermill.



KNEE ASSEMBLY RIGHT SIDE ▶

1. Hand control for vertical movement of table
2. Hand control for cross movement of table
3. Feeds selection lever
4. Control lever for all rapid traverses
5. Feed gear-box
6. Control door of feed gear-box.

UNIVERSAL MILLING MACHINE

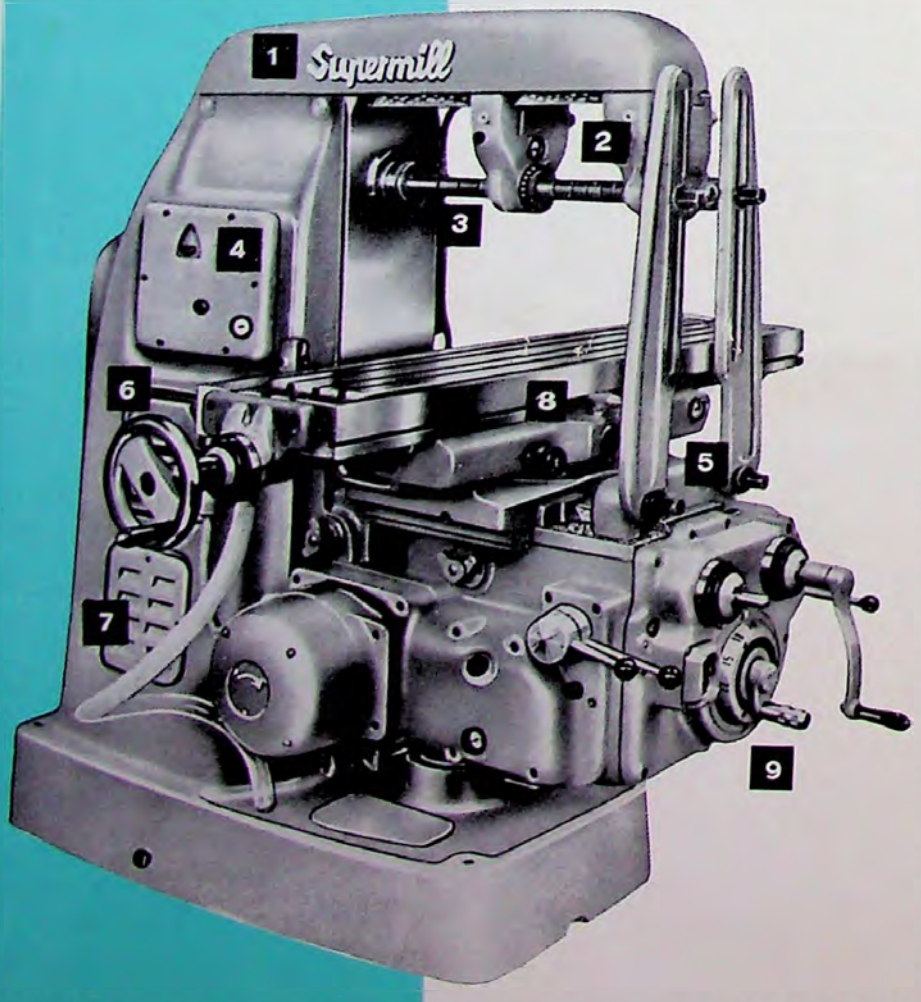
SUPERMILL 3U

Modern design offers the Supermill user the latest developments in:

- finger-tip controls
- absolute rigidity
- maximum productivity.

These features characterize a modern machine destined for high production operations with maximum use of tungsten carbide tools.

The rigid structure and the rugged column have been designed with the aim of eliminating vibration even under the heavy stresses caused by the high speeds of the spindle and the fast feeds.



1. Adjustable overarm
2. Adjustable support for spindle
3. Spindle arbor
4. Inspection cover of spindle gear-box and lubricating pump
5. Support bracket for braces
6. Inspection cover for rectifier supplying DC Current to electromagnetic clutch to the spindle gear-box
7. Side door for access to spindle motor
8. Carriage and table unit
9. Knee unit

1 Locking bolts for adjustable overarm

2 Locking bolts for adjustable supports

3 Spindle speed selector

4 Electric control panel

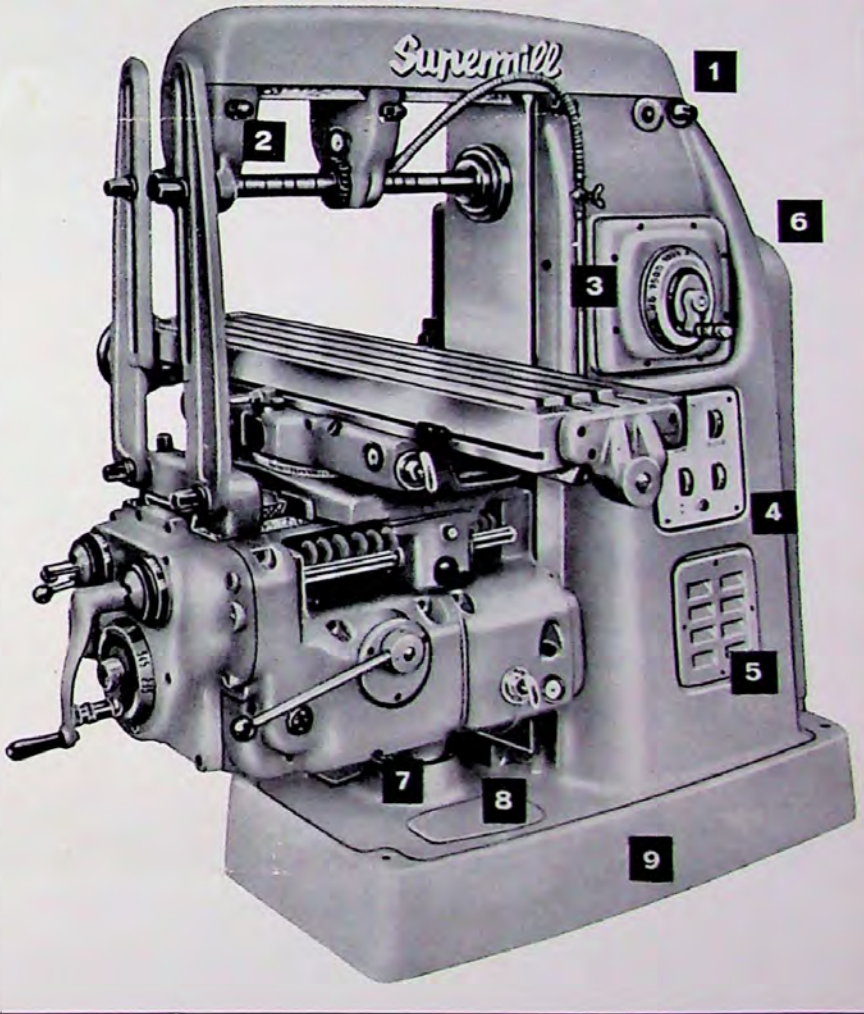
5 Side door for access to spindle motor

6 Rear door for access to electromagnetic clutch

7 Elevating screw for vertical movement of table

8 Inspection cover for coolant tank

9 Base containing coolant tank



MATERIALS - One of the outstanding features of the Supermill is their high quality raw materials which have carefully selected and tested.
Castings used are of uniform grain structure and are stabilized by a modern and efficient processing system.
The nickel chrome and carbon steels are supplied only by the best steel works. According to the characteristics and the use they are intended for, these steels undergo the appropriate heat treating.

BRONZE - Every particular part is made of that alloy that guarantees best life and resistance according to the wear and the stresses.
The finest precision bearings are used throughout.
The gears are of nickel chrome steel hardened and ground on Maag machines.

KNEE ASSEMBLY

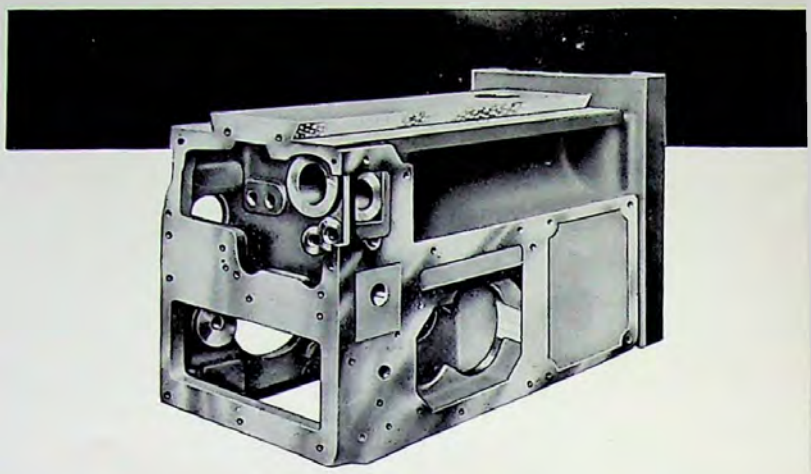
The most remarkable construction features of the knee assembly are:

— The feed gear box is located in the center of the knee assembly in order to prevent vibrations even under heavy operations.

— In the front box are located gears and parts for the reversal of the different movements, as well as the automatic feed control.

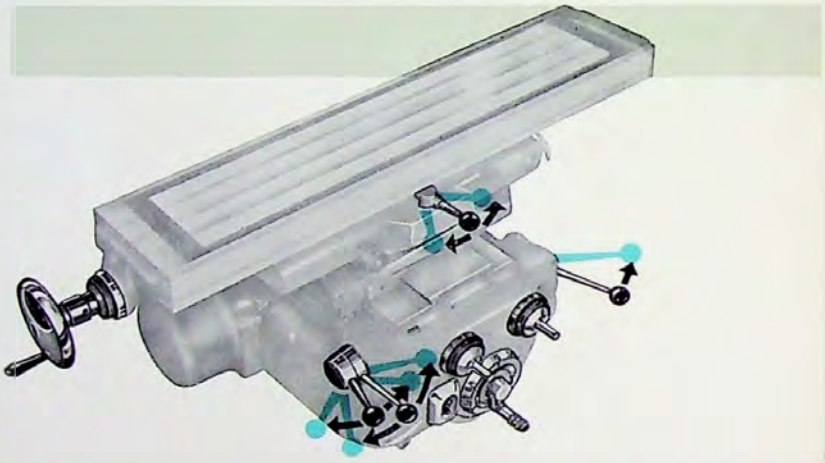
— Control levers for rapid traverse and safety device are located on the right side.

— An automatic pump assures continuous lubrication of all moving parts.



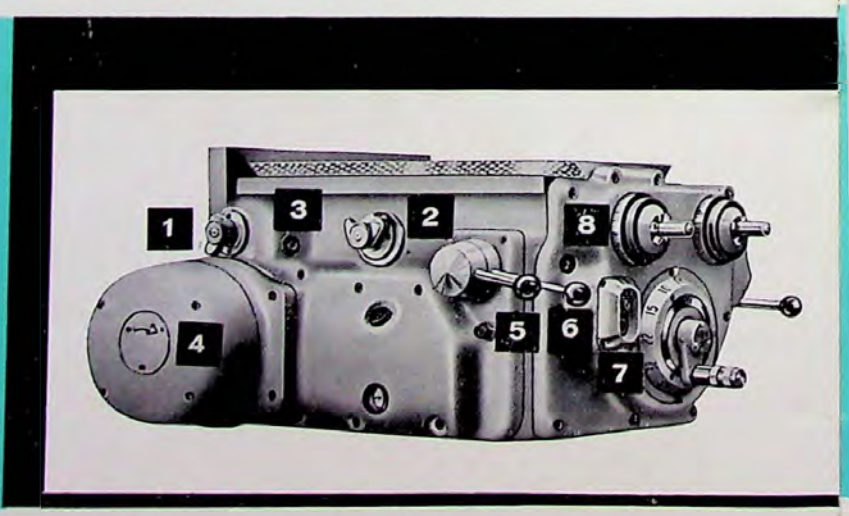
CENTRALIZED AND DIRECTIONAL CONTROLS:

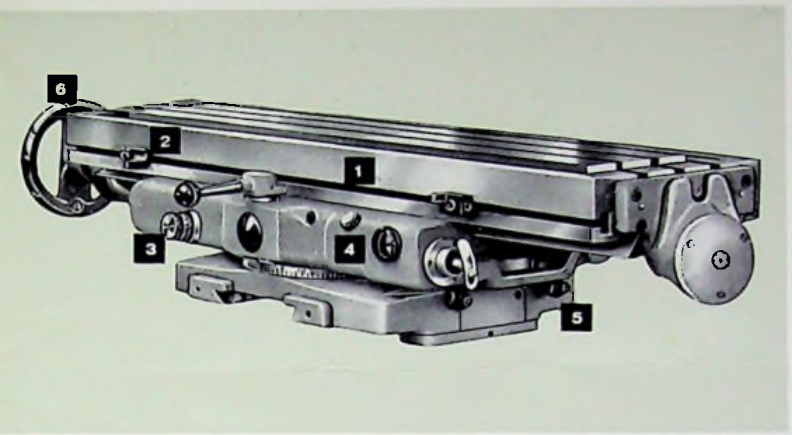
The characteristic features of the model 3U milling machine are, like for all Supermill milling machines, centralized and directional controls, permitting safe operations of the machine.
The picture on the side illustrates the centralized position and the directional controls for the three movements, the control lever for rapid movements, the spindle control lever and the feed selection levers.



KNEE ASSEMBLY - LEFT SIDE

1. **Automatic stop for vertical movement of table**
2. **Automatic stop for cross movement of table**
3. **Adjustable stops of knee assembly**
4. **Feed motor**
5. **Control lever for vertical movement of table**
6. **Control lever for cross movement of table**
7. **Push button for spindle start and stop**
8. **Hand control for vertical movement of table**





CARRIAGE GROUP

1. Control lever for longitudinal movement of table
2. Control lever for automatic stops of table
3. Climb milling attachment
4. Tank for lubricating pump for table unit
5. Fastening screws of carriage unit
6. Hand control for longitudinal movement of table

LUBRICATION SYSTEM: Because lubrication is most important on the 3U with its fast and heavy feeds, every moving part has to be lubricated; the system has been subdivided as follows:

1st group (spindle gear box) forced lubrication by automatic pump with visible level and control

2nd group (feed gear box) oil immersed with oil lever control

3rd group (slideways of knee assembly and elevating screws) independent oil tank with manually operated pump

4th group (table and carriage) manually operated pump with independent oil tank.

ELECTRIC SYSTEM: it is extremely simple and practical. All the controls are placed on a single panel which is located on the side of the machine and encloses:

1 - Switch for main motor

2 - Switch for assembly knee motor

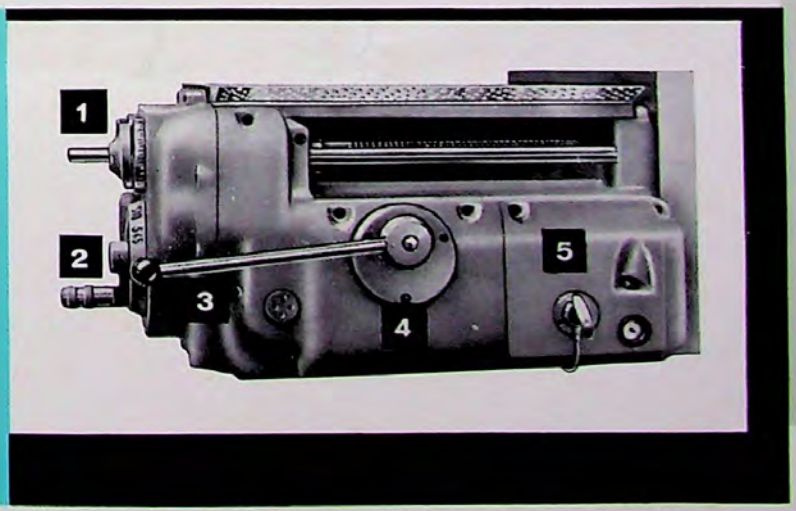
3 - Electromagnetic clutch switch

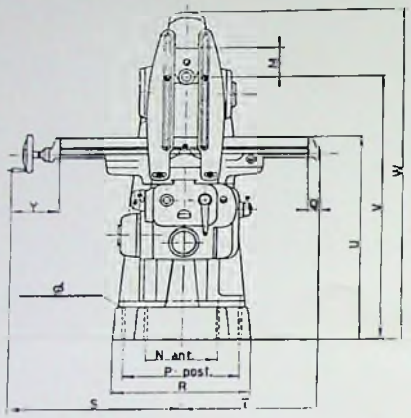
4 - Pump switch.

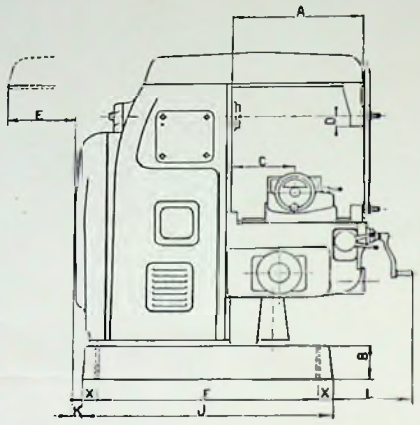
The push button of the electromagnetic clutch is placed on the front part of the machine, permitting the operator to control all movements of the machine, without having to move.

KNEE ASSEMBLY - RIGHT SIDE

1. **Hand control for cross movement of table**
2. **Rotary feed selection levers**
3. **Control lever for rapid traverse of table**
4. **Control cover of clutch for rapid traverse**
5. **Oil tank for lubrication pump for slideways, and vertical movement of knee assembly.**

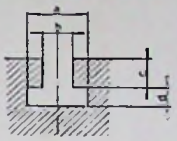


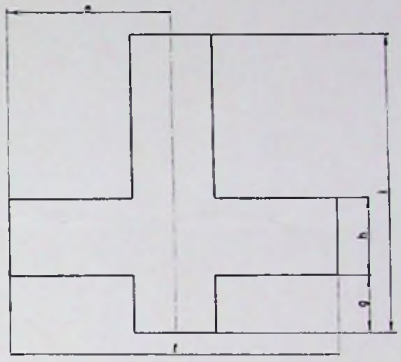




	SUPERMILL 2U inches	SUPERMILL 3U inches
TABLE		
Working surface	52" x 10 5/8"	60 x 12 1/4"
Number and size of T-slots	3 x 5/8"	3 x 23/32"
Distance between T-slots	2 11/64"	2 3/8"
Swivels in both directions	45°	45°
RANGE OF TABLE		
Longitudinal	33 1/2"	43 1/4"
Cross	10 5/8"	12 1/4"
Vertical	17 1/4"	18 1/2"
Max. distance from centerline of spindle to top of table	17 1/4"	18 1/2"
Min. distance from centerline of spindle to top of table	0"	0"
SPINDLE		
American standard taper	A.S. 50 (2-3/4")	A.S. 50 (2-3/4")
Diameter of nose	3.500	5.0615
Size of hole through	11/16"	11/16"
Number of speeds	12	12
Speed range	25 to 1.500	25 to 1.500
FEEDS		
Number of feeds	12	12
Longitudinal feed range	1/2" to 19 3/4"	7/16" to 31"
Cross feed range	1/2" to 19 3/4"	7/16" to 31"
Vertical feed range	1/4" to 9 7/8"	7/32" to 15 1/2"
RAPID MOVEMENTS		
Longitudinal and cross	67"	71"
Vertical	33 1/2"	35 1/2"
ELECTRIC EQUIPMENT		
Spindle motor (two speeds)	5 Hp.	7 Hp.
Feed motor	1.5 Hp.	2.5 Hp.
Electric pump	1/4 Hp.	1/4 Hp.
Capacity electric pump	2.2 gallons	2.2 gallons
WEIGHT		
Net weight	Lbs. 4840	Lbs. 6110

Specifications subject to change without notice and not binding in detail.
Standard Equipment For...
Motor and Controls - Draw Bar - 1 Arbor - 2 Arbor supports - Knee Braces Wrenches - Instruction book
Available Equipment For...
Vertical head and driving arbor - Universal dividing head and tailstock; gear segments; set of gears, reversible index plate.
Motorized universal vertical overarm attachment - Slotting attachment - Motor driven coolant pump and piping - Universal vertical attachment - Swivel Vise - Climb milling.





DIMENSIONAL DRAWINGS 2 U

A	B	C		D	E	F	G	H	I	J	K	L
		min.	max.									
22 13/16"	6 5/16"	6 5/16"	15 3/4"	1 9/16"	9 7/16"	37 13/16"	10 1/4"	26 13/16"	48 3/16"	42 9/16"	1 9/16"	12 3/16"

M	N	O	P	Q	R	S		T		U	
						min.	max.	min.	max.	min.	max.
5 7/16"	13 3/8"	2 3/16"	20 7/8"	9 7/16"	25 3/16"	19 11/16"	46 7/8"	19 11/16"	46 7/8"	22 5/16"	48 13/16"

V	X	Y	Z	W	a	b	c	d	e	f	g	h
48 13/16"	2 3/8"	9 7/16"	9 7/8"	60 5/8"	1 1/16"	5/8"	3/4"	1/2"	46 7/16"	92 15/16"	10 1/4"	19 5/16"

i	l	m	n	o	p	q	r	s	t	u	∅
66 3/4"	0,6255	5/16"	7/8"	1 9/16"	1,750	3,498	5,905	2,626	1/2"	16° 35'6"	13/16"

DIMENSIONAL DRAWINGS 3 U

A	B	C		D	E	F	G	H	I	J	K	L
		min.	max.									
24 5/8"	6 7/16"	7 1/4"	18 1/2"	1 13/16"	14 3/16"	39 3/8"	9 7/8"	37 7/16"	57 1/4"	43 7/8"	2"	15 3/4"

M	N	O	P	Q	R	S		T		U	
						min.	max.	min.	max.	min.	max.
5 13/16"	15 3/4"	2 3/16"	22 1/2"	2 3/16"	27 9/16"	20 5/16"	57 11/16"	12 1/2"	48 7/16"	33 5/16"	51"

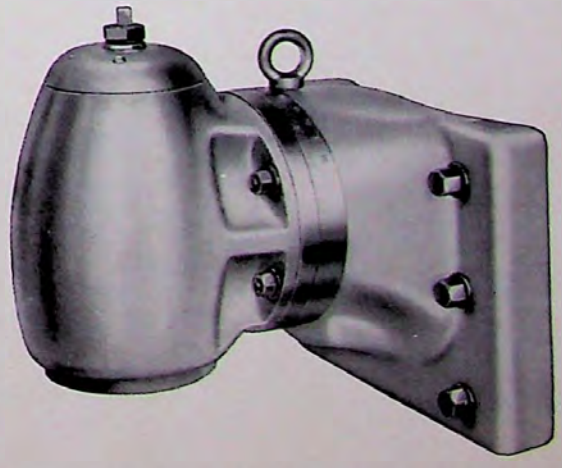
V	X	Y	Z	W	a	b	c	d	e	f	g	h
51"	2 9/16"	10 7/16"	11 13/16"	63 13/16"	1 1/16"	5/8"	3/4"	7/16"	57 11/16"	107 1/16"	11 1/16"	22 7/16"

l	l	m	n	o	p	q	r	s	t	u	∅
76 13/16"	0,6255	5/16"	7/8"	1 9/16"	1,750	3,498	5.905	2,626	1/2"	16° 35'6"	13/16"

VERTICAL HEAD

This attachment allows quick converting of the machine into a vertical milling machine. Its exceptional sturdy structure and the easy mounting facilitate toolroom production, enabling rapid and absolute precise work. The spindle is mounted on tapered roller bearings.

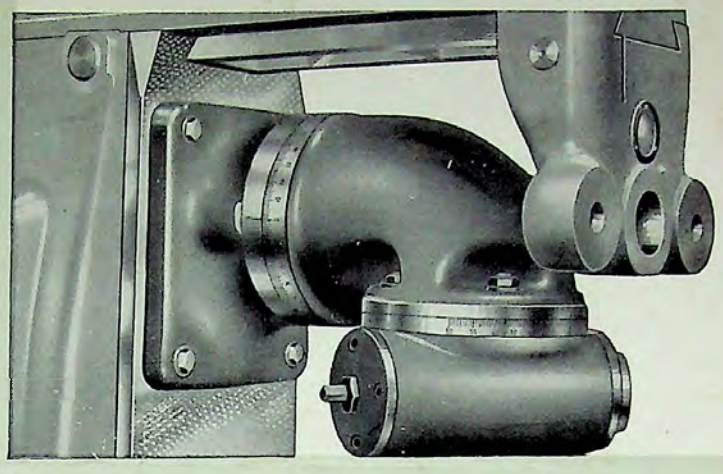
Specifications:	2 U	3 U
Distance between surface of upright and spindle axis	10 1/2"	11"
Swivels in both directions	180°	180°
Spindle taper	A.S. 40	
Max. distance bet ween nose of spindle and surface of table	14 1/2"	15 3/4"
Weight	lbs. 137	176

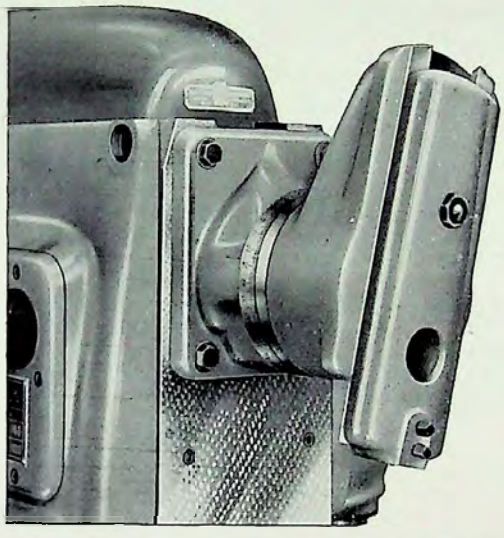


UNIVERSAL HEAD

Suitable for milling at any angle. Can also be used for milling racks.

Specifications:	2 U	3 U
Distance between surface of upright and axis of spindle	10 1/2"	10 1/2"
Spindle taper	A.S. 30	
Max. distance between spindle nose and table surface	11"	12 1/4"
Weight	lbs 119	128

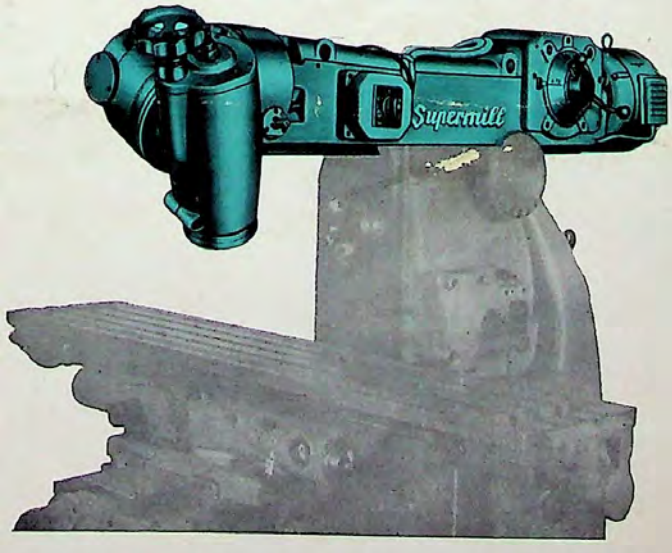




SLOTTING ATTACHMENT

Heavy duty and accurate, permitting heavy cuts. The travel of the tool is adjustable from 0 to a max. of 4 5/16". It can cut at any angle.

Specifications:	2 U	3 U
Distance between surface of upright and axis of tool hole	10 1/2"	10 1/2"
Swivels in both directions	180°	180°
Diameter of tool hole	11/16"	11/16"
Max. travel	4 5/16"	4 5/16"
Min. distance from slide to surface of table	12 1/2"	13 3/4"
Max. distance from slide to surface of table		
Weight	lbs. 100	lbs. 100



SPECIFICATIONS:

Spindle speeds **normal range** n. 12
40-60-81-121-164-248-332-498-672-1000-1360-2040 RPM.

Spindle speeds **normal range** n. 12
59-88-119-178-240-365-490-730-990-1370-2000-3000 RPM.

Maxymum distance from column to center of spindle when vertical	35"
Movement of sliding spindle	3-1/8"

DISTRIBUTED BY

Overam with motor driven universal milling head
This universal swivelling milling head is mounted at the front end of as pecially designed overarm and is driven by a motor placed on the same overarm, so that it is entirely indipendent from the ordinary drive. It will swivel through 360° on the two axis so that the spindle may be presented at any angle.
The hardened spindle has a nose of 3.4993" with solid driving dogs and 1-3/4" dia. at large end of hole (n. 40 A.S.).
There are 12 rates of spindle speeds obtained by slindig gears controled by a dial on the righ side of the overarm.

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